

The crown of tube amplification

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Certificate of origin

This handcrafted product was special made for your high demands, to display the music on its finest way. We guarantee, that this amplifier was carefully produced and tested in all details.

Mr. Helmut Becker

[Manager Production & Development]

Sign:

since 1982



Instruction Manual

RKV-MARK 3

model – 2013

ultra highend mult function headphone amplifier

We congratulate you with the purchase of this superb AUDIOVALVE - HiFi component.

This handcrafted product has been manufactured with only your most demanding requirements in mind. It was made to afford you many years of musical enjoyment.

AUDIOVALVE guarantees that this amplifier has been produced under the strictest of guidelines and with respect for procedures acquired through decades of tube amplifier design. Your SUNILDA Pre-amplifier has been thoroughly tried and tested in all details.

I personally guarantee the quality of this product

Helmut Becker, Design & Production



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Introduction

Dear client, we congratulate you on your purchase of this superb AUDIOVALVE HiFi component.

To safeguard maximum functionality and to avoid operating problems, it is important for you to carefully study this owners manual and to follow all instructions therein precisely!

General information

Important instructions, regarding safety, security and operational reliability while using the SUNILDA Pre-Amplifier are highlighted throughout this manual.

Factory address:

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Email: info@audiovalve.info
website: www.audiovalve.info

Safety precautions

Important: Study the owners manual before assembly and operation of the amplifier

Anyone, unable to comprehend the instructions stated in the owners manual should not operate the device.

Children and minors are not to use the device and should be kept at a safe distance from the device during it is running.

The user is responsible for operating the device in an appropriate fashion and it takes full responsibility towards third parties. Before the amplifier can be used the first time, suitability of taken precautions regarding electrical safety must be approved through professional assessment.

Check that the mains voltage printed on the rear panel of the amplifier corresponds with the line voltage in the territory where you intend to use the amplifier.

Always check power-cords and plugs for damage before use.

Disconnect the power-cord before work is being done on the amplifier.

In the unlikely case of a failure of the device repairs may be performed by AUDIOVALVE authorized technicians only. Use

ORIGINAL spare parts only!

Please take note of the fact that **we waive product liability** for damages caused by our devices, parts and components as a result of:

- a) Unprofessional and / or faulty and / or correct repairs that have been performed in other than the by AUDIOVALVE approved repair facilities,
- b) Usage of other than ORIGINAL and approved spare parts.

The RKV MARK 3 Amplifier is subject to and complies with German security class 1 for devices with metal housing. The device is grounded, and may not - by manipulation or otherwise - be ungrounded for any reason! To prevent hum as a result of interconnecting your devices with the Amplifier, the internal electrical circuitry has been designed to have no grounded mass !!

The RKV is capable of extremely high sound levels. This has the danger of severe hearing damage.

While listening to headphones we lack several feedback mechanisms on volume level that are present when we listen to loudspeakers. Much less distortion, no feeling of the lower frequencies by our body and no psychological restraints not to annoy our fellow-men easily seduces us to listen at volume levels that are detrimental to our hearing. Hearing damage from regular exposure to high sound levels progresses slowly but is irreversible and can result in permanent hearing loss.

!! Please choose your volume setting with caution-!!

RKV MARK 3 **ultra highend headphone tube amplifier**

The RKV MARK 3 was developed especially for the highest-quality reproduction with earphone-and serves very well complete range of impedances from 8 up to 1000 ohms. He unfolds his big strength with roughly 6 watts per canal in 100 ohms.

The amplifier owns switchable entrances. Thus can be connected, e.g., CD player and TUNER at the same time.

The circuit of the amplifier owns 8 tubes of the Type PCL 805 and prepares the signal for the output stage tubes as OTL mode first line.

The final tubes work constantly in Class A and are post-regulated automatically optimally in the Bias closed current, so that tolerance and aging of the tubes do not matter.

The care tensions are won from a strong, free of litter, Torodial-Transfomator. The amplifier itself rests on one single two-page printed circuit board and was adapted signal-technically optimally. All parts on the PCB are of the best quality and selected carefully to do justice to the requirements of the reproduction in every regard. The case is from metal and prevents interferences from the outside. It is available in the colors black and silver as standard and in a new more expensive line named "IVORY EDITION".

Like all products of AudioValve this amplifier also distinguishes itself especially by his exceptional musicality which is based at last also on the fantastic technical values of the circuit and their stability. As a user you will be able to enjoy this product in the highest perfection for many years enthusiastically and come with it to the pleasure of fantastically detached musical reproduction with your headphones.

Product Description

Earlier than expected the **AUDIOVALVE** Team is happy and proud to announce the new headphone amp **RKV MARK III**. Based on the legendary **RKV MARK II** (since 1982) Mr. Becker - the designer - has developed this new headphone-amp with unique new and interesting features. It will be launched by beginning of November.

The below pictures are shown our also new ivory edition for all models, which are coming with a special high quality ivory color chassis, special cables and some extra components.





The new RKV MARK 3 headphone tube amplifier is a beauty. It's ability to render fully believable, 3D images, replete with harmonic richness is unparalleled. That's what it comes back to, again - music. Amid all the subjective observations and objective measurements that one can muster, the ineffable, emotional feel of the music is what many of us are seeking. And it will be so easy you'll wonder how you ever survived without it. The RKV MARK 3 is simply such a stellar performer it doesn't leave much left to be desired.



AudioValve puts most of our budget towards the sound quality of our design and components rather than all of the audio jewellery and marketable designs featured by some of the comparable sounding amplifiers on the market. We would say on sound alone it outclasses its price point, for design and fit and finish it fulfils our expectations of an established company in this price range. Sound wise this amplifier ticks all the boxes, great tonality, world class 3D sound stage, a noise floor on par with all but the very best valve based amplifiers, and macro and micro dynamics in spades. The sound quality of the RKV MARK 3 is of absolute top reference level for an OTL based headphone tube amplifier. The pros to this are rock very low noise floor, low distortions, high frequency range, high damping, very natural and musical tonality, wide impedance matching, perfect open sound stage and so on. This amp isn't for the weak of heart - this is an audioholic's . Highly recommended is an understatement, we can't tell you how impressed we have been with the development of this headphone tube amplifier.

Controls and operation on the front and rear panel

On the left side of the front aperture , the two jacks for headphones and three rotary switches. The headphone jacks are connected in parallel when using the 6.3 mm connectors. For the use of XLR connectors , take the lower bushing for the right ear and the top of the left ear .

Below the two headphone jacks is the Mode switch. Use it to select the mode with which you want to hear. Use the OTL mode if you have a high-impedance headphones (> 100 Ohms) , or benefit you if your headset has the IMP mode less than 100 ohms impedance , or if you intend to use speakers. Which musical impedance best suit with your headphones , you have to find out for yourself. Just turn on the IMPEDANCE switch.

With the last of the three rotary switches on the left, select the source you want to listen to. Then a total of 45 (4 +1) RCA inputs for disposal . Input 1 + 2 are also equipped with XLR inputs.

Input 5 is occupied by the built-in phono module. Of these RCA phono jacks (5) you can pass the phono signal to other devices .



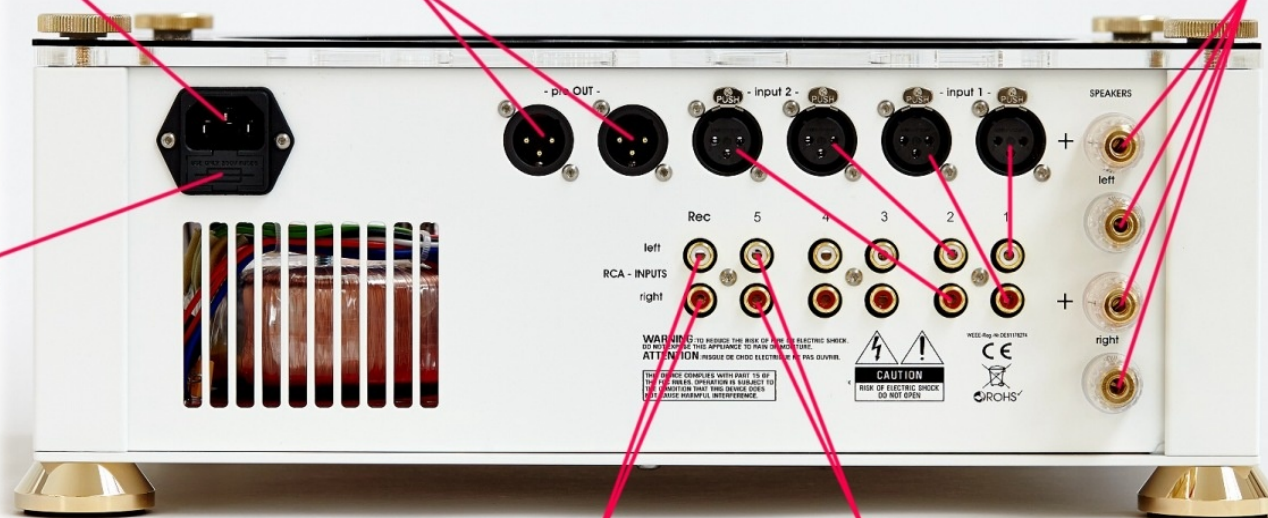
In the middle of the front panel you find the alps volume pot, right the balance control and left the power switch. When the unit is in operation, a green LED lights in the switch.

euro main plug

OTL pre out 10:1 for power amp

speaker terminals

fuse



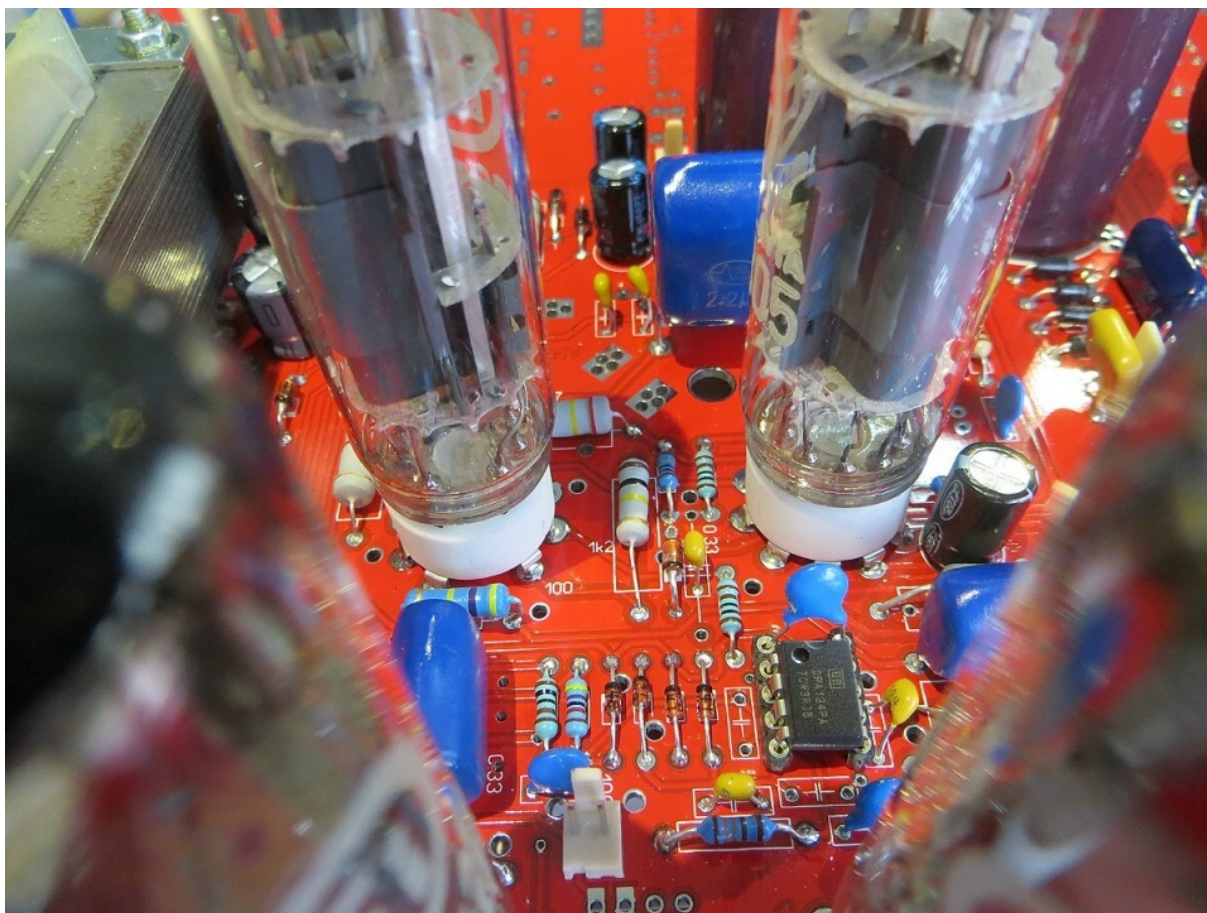
permanent phono out
selected source out

The excellent results the headphone amplifier RKV MARK 3 provides, are not only based on the sophisticated design of the circuit board.

A perfect developed circuit design is only perfect when it is implemented in accordance with the practice.

For all these products AudioValve theoretical and practical symboise is harmonious and coherent. This leads to a matchless musical reproduction of all sound sources.

Also in RKV Mark 3 is a fully automatic biasing servo controller to use. In our new approach we have chosen a OPA134.



The black jack at the upper right of the backside is the IEC power inlet. Inside the power inlet a fuse can be found as a protection against overload.

For the 117 V version the value of the fuse should be 3,15 Ampere Slow.

For the 235 V version the fuse is 1,6 Ampere Slow.

Please only change the fuse with the power-cord disconnected and if you're sure that the amplifier is not defective!

USAGE

Dear AudioValve fan,

we are delighted that you have for your audio - have bought a device from AudioValve hobby. We know this much appreciated and will always strive to meet your expectations.

The RKV MARK 3 is a logical development of our highly successful predecessor models RKV. This amplifier is designed for playing music through headphones in the first place, and can act in different impedances. You can also use the amplifier but also for playing background music about speakers. Playing music through speakers has minor importance because the power of the amplifier is rated for headphones.

The *AudioValve* - RKV MARK 3 is a small-power amplifier, specially designed to drive headphones. It offers a sound quality and driving capabilities far beyond that of an ordinary headphone socket found on a CD-player or amplifier and thus allows you to exploit the full sonic potential of your headphones.

Due to the close contact to your ears, headphones provide an extreme channel separation whilst listening to stereo recordings. Unlike loudspeakers, none of the sonic information in the left channel is acoustically transferred to the right ear and vice versa. Although this adds to the extreme high level of detail that can be achieved with headphones, it subconsciously also introduces mental stress. The natural correlation of stereo sound interpreted by the brain is lost.

The *AudioValve* - RKV MARK 3 not only offers normal stereo reproduction of your music, but it also has a facility to add some of the left channel information to that of the right channel and vice versa. Thus mental stress is reduced and music can be enjoyed with more ease.

For safety and in order to obtain the best possible results with your new headphone preamplifier, we ask you to read these instructions carefully. The RKV MARK 3 was developed by music-lovers for music-lovers and we hope that it will serve you well for a long time.

Connections

At the rear side of the *AudioValve* - RKV MARK 3 more pairs of inputs allow you to connect different audio sources that have typical output voltages (CD- player, cassette-player, tuner, mini disc-player, ...). The source you want to listen to can be selected by the rotary switch at the left front side of the amp.

The RKV MARK 3 can also be used as a preamp. He has two gold-plated XLR female connectors for even the back wall, which also vary in level with the volume control. Its signal come from the OTL stages divided signal level by 10. With two sockets, for the left and right channel, only the pin 2 is occupied hot plus phase.

Your headphone should be connected to one of the headphone - sockets on the front side of the RKV MARK 3. You can also use the sockets to connect two headphones simultaneously.

The sockets are intended for 6.35 mm stereo jacks and for XLR jackets too. The top jacket support the left channel (XLR pin 2) and the bottom jacket support the right channel (XLR pin 2). If your headphone only has a 3.5 mm jack, then use an adapter that can be obtained in most electronics or audio shops.

Use of the IMPEDANCER

In case headphones with impedances below 100 Ohm are to be connected, it is recommended to use the internal match transformers for a better match between amplifier and load impedance your headphone. This allows to connect headphones with impedances between 8 – 128 Ohm too. The transformers for its mode are implemented in the amp and can be used with the rotary switch OTL - IMP - mode.

Also high efficiency loudspeakers can be connected through the two pairs of connectors at the back panel. The rotary switch 8 - 16 etc. selects the right amount of impedance matching. In case of doubt optimal matching can be established by ear.

If you like to use two headphones of the same load impedance please select a matching impedance at the Impedanzer that equals half the impedance of each headphone. Example: Both headphones have a 32 Ohm load impedance and both are connected. Please select the 16 Ohm setting for a proper matching.

A word of warning:

The volume control of the RKV should always be turned all the way down before operating any rotary switch. Bypassing the Impedanzer will otherwise result in a considerable jump in volume, which may damage your hearing or your equipment.

In this picture you can see the left section of the board, the phono section and the right headphone protector. The phono module is classic old school style and built with hand selected components, and fantastic musically.

SPECS: MM phono - section:

output impedance: 450 ohm

input impedance: 47 kOhm

RIAA accuracy: (Referenz - 0,000dB - 1Khz:

100Hz - 0,07dB

10.000Hz - 0,04dB

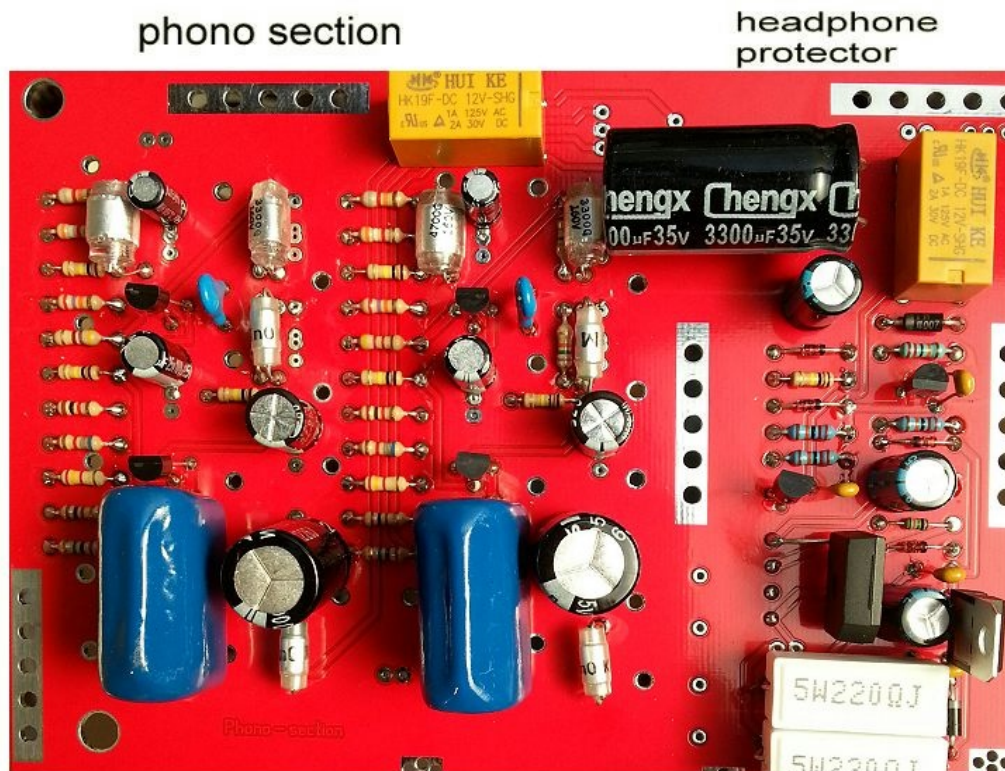
20.000Hz - 0,02dB

30.000Hz - 0,02dB

noise: -74dB

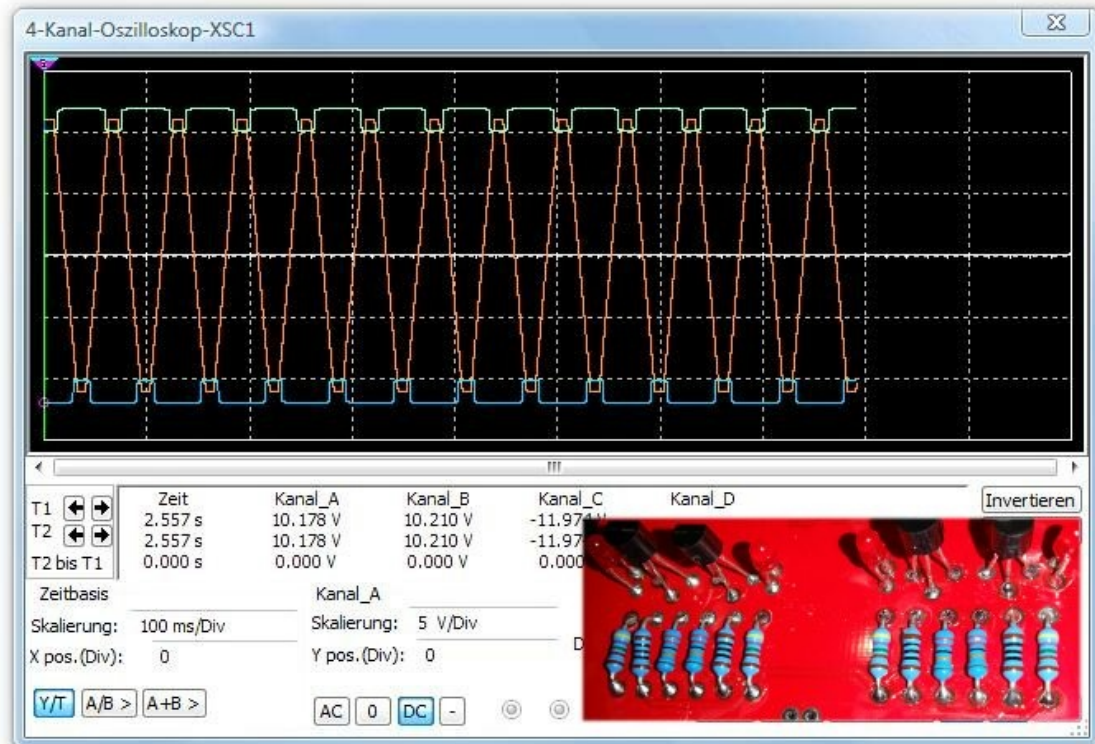
distortion: 0,015% (1V rms output signal)

gain: 46dB



The headphone protector reliably protects the headphones from pulses that can occur when switching ON or switching OFF the amplifier. The outputs of the amplifier are shorted for this time both on power as in both cases.

Months in ongoing testing of the Mark 3 was developed to perfection. In many updates over and over again the case, the circuit and PCB layout has been optimized. At the end of this long period, we got the perfect product in front of us.

- CLIPPING / OVERLOAD circuit -

When the red sine wave at the output of the OPA reaches the upper or lower limit of supply voltage (out of range), one of the two red LED (green / blue wave) lights as an indication of an overload of the amplifier. Then either the volume is too high, impedance is mismatched, or a tube of this channel is faulty.



Intended use / Application

AUDIOVALVE Hi-Fi Amplifiers are intended for use under the following circumstances only:

- To play and transfer music of any make and fashion when this occurs in private dwellings or studios.
- All devices must be operated under moderate climatological circumstances, comparable to those under which human beings usually live. When the surrounding temperature is too high, the device will heat up beyond its optimal parameters. This can damage the amplifier. Proper ventilation will be needed, and the amplifier should not be covered in. Allow approximately 3 cm of air sidewise and approximately 4 cm above the amplifier to cool the amplifier.
- Unusually high humidity of the air increases the risk of short circuits in the device because of the increased conductivity. This reduces the internal insulation values dramatically and will eventually result in a malfunction of the amplifier. This increased conductivity also might endanger the user of the device. In general terms the amplifier should not be used for other than its intended purpose.

Factory assembly & getting started

Once the amplifier has arrived at its desired destination, make sure the amplifier has ample time to adjust to the climate at its new location. It is likely that the changes in temperature and humidity between the last location and the new one, has caused condensation to build up somewhere in the amplifier.

This can damage the device. Please allow the amplifier at least two hours to acclimatise.

The amplifier comes fully assembled, ready to go. The power-cord should not be used as yet, please connect all other input and output connectors first (cinch-cables, speaker-cables, etc).

The device **MUST** be switched off during it connecting to other components, it might be damaged if this will be done with the amplifier under power. The person operating the amplifier might be hurt as well in this case, since power-spikes, operating currents and voltage charges may occur!

Check whether the ON/OFF switch is in the OFF position. If so, you can now plug in the power-cord.

Use high quality cables only! Usage of DIY cables, low spec cables or cables intended for other use voids all warranty and cancels any product liability. Make sure all plugs are connected tightly to the amplifier. When in doubt, replace the cable.

Always use the device in a 'complete configuration', damages may occur when devices are not connected to the amplifier when it is being run.

Never lift the device by its glass cover, not even when there are gripes attached to the cover. The gripes and the cover are there for ornamental purposes only. They make the amplifier look nice. The amplifier should be positioned at a level surface, in time the construction of the glass housing may fail as a result of tensile forces.

Please disconnect and move the amplifier when you replace tubes. Replace them at a place where you can work easily. You might damage the 'motherboard' if you replace the tube in an awkward position. After that please check all connectors. If all connectors are undamaged, make sure the switch is in the OFF position, reconnect the power-cord and switch the amplifier on. You can make sure the amplifier is properly connected by checking the tubes. Only the inside of the tube should glow. If the steel cover jacket glows as well, the device is faulty and must be serviced immediately. As a rule of thumb the device should work now. Don't push the volume up to its maximum just yet, allow the device to burn in smoothly and avoid power-spikes.

The SUNILDA Pre-Amplifier needs at least a 1.6 Ampere slow blow circuit breaker in the fuse holder for 230 VAC main voltage and 3,15 ampere slow blow by 115 VAC. Make sure your wall socket is equipped in such a fashion.

Technical Specifications:**BASIC SPECS:**

- power consumption: 120 watt
- weight: 10 kg
- size: 400*340*150mm

SPECS: OTL mode:

- power output: 5,8 watt - 220 ohm load - (1% THD)
- max. output voltage 100 VAC / 2kohms load
- bandwidge: 10 - 150.000 hz (100 ohms)
- Ri: 0.01 ohm
- THD: configure - **LM 351** - 3V - 1 kHz
- 100 ohm load 0,014%
- THD: configure - **LM 351** - 3V - 10 kHz
- 100 ohm load 0,014%
-
- THD: configure - **OPA134** - 3V - 1 kHz
- 100 ohm load 0,008%
- THD: configure - **OPA134** - 1V - 10 kHz
- 100 ohm load 0,018%
- Gain: 23 dB
- s/n - ratio: 100 dB

FEARTURES:

- consequence double mono design
- 2 * 0,15mm copper for top and bottom layer
- multi VIA layer grounding basis, pcb design is based on the theoretical principles of the "kelvin - wiring"
- heavy 3 mm laser cuted steel case - coated
- clipping indicator (show you faulty tube or overload)
- 8 power tubes (4 per channel) - PCL805
- full automatic DC / AC servo biasing
- multi match transformers (PIKATRON) included
- power output mode selector - OTL / match - transformers
- ALPS volume control
- BALANCE pot. +/- 3dB
-
- 2 * NEUTRIK output combi headphone jackets - 6,3mm & XLR
- 5 * inputs: 2 * RCA / XLR; 2 * RCA only; 1* RCA phono MM
- 1 * REC output, offer all connected soures and PHONO too for sec. line (pre) amps
- 1 * jacket XLR for power amps (OTL output ratio: 10:1)
- 4 * isolated heavy gold plated stereo speaker terminals
-
- illuminated main power switch
- heating and plate voltage "soft start" circuit
- headphone protector circuit
- reversible heating / plate current limiter
- installed OPA 134
- implemented stereo MM phono modul - "old school design"

OPTIONS:

1 - case color: standard - black or silver -

2 - **"limited EDITION ivory white colored case"** - hand selected parts < 1% tolerances and a lot of more expensive specials

SPECS: match - transformer mode: (impedancer)

- THD: configure - **OPA134** / 1 kHz / **8 ohm** load
 - 0.1 VAC - 0.015%
 - 0.3 VAC - 0.015%
 - 0.6 VAC - 0.02%
 - 1.5 VAC - 0.1%
 - 3.0 VAC - 0.3%
- all other higher impedances have a more and more lower THD
- match transformer switch for: 8 - 16 - 32 - 26 - 128 ohms load

**SPECS: MM phono - section:**

output impedance: 450 ohm

input impedance: 47 kOhm

RIAA accuracy: (Referenz - 0,000dB - 1Khz:

100Hz - 0,07dB

10.000Hz - 0,04dB

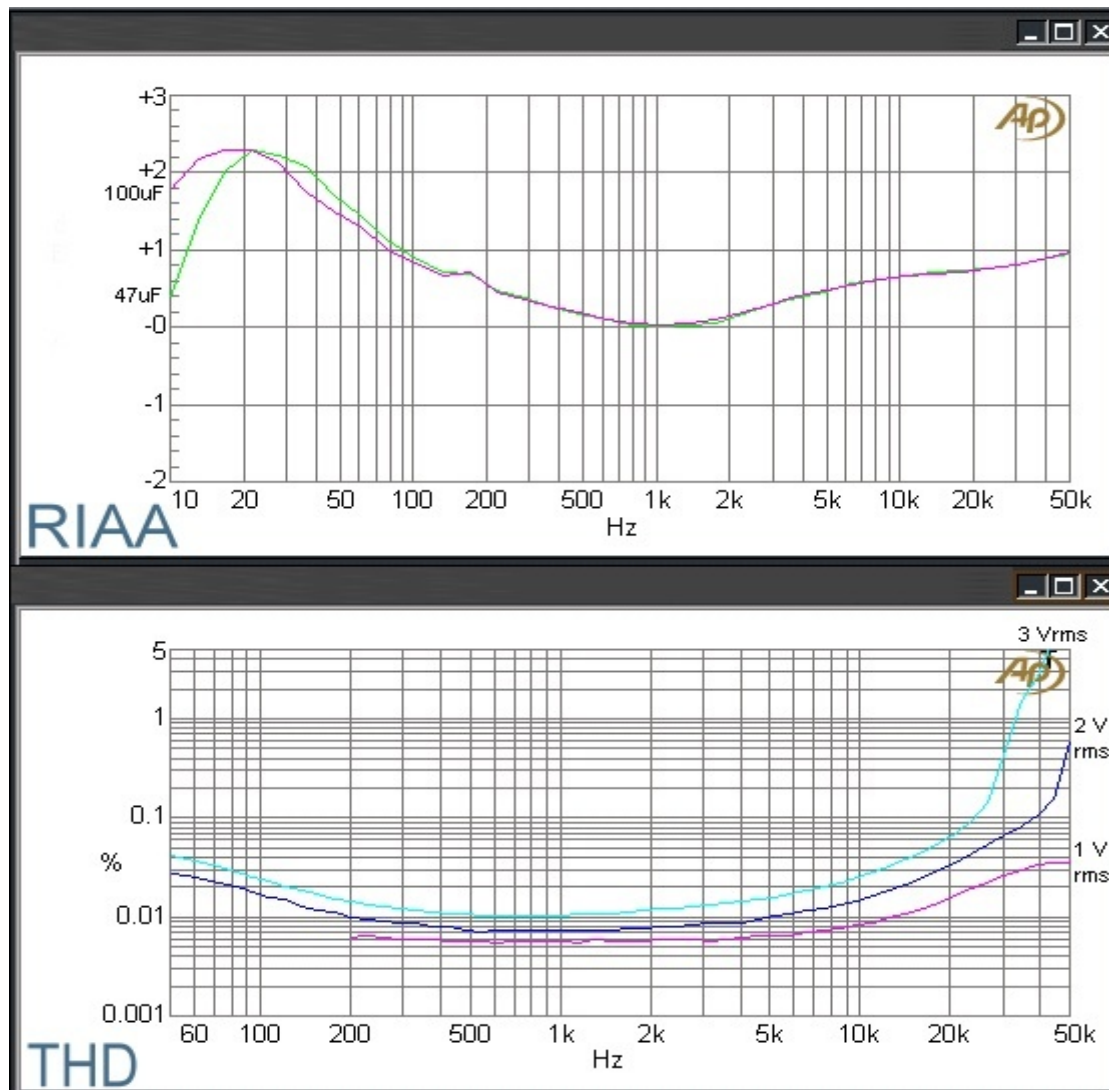
20.000Hz - 0,02dB

30.000Hz - 0,02dB

noise: -74dB

distortion: 0,015% (1V rms output signal)

gain: 46dB



WARRANTY

AUDIOVALVE warrants its components for a three-year period on all electronics and a 90 - day period on the tubes from the purchase date.

In the event of a failure of your amplifier, AUDIOVALVE will repair or readjust this unit or, should the occasion arise, will replace it provided that all conditions stipulated in this warranty are met.

In order to initiate service of any kind it is necessary to obtain distributor or dealer authorization prior to shipping the unit for service.

Any of the following conditions shall void the warranty:

- | Operation not in accordance with this manual.
- | Abuse , accidental damage or unauthorized modifications , as determined by AUDIOVALVE or its agents exclusively.
- | Removal, defacing or falsifying of the serial numbers.
- | Shipping without the original complete factory crates.

WARRANTY REGISTRATION

Please fill out and return this warranty form to the distributor within 15 days of the purchase date, or fill out our online warranty registration form at: www.audiovalve.info

| MODEL : _____

| SERIAL NUMBER : _____

| PURCHASE DATE : _____

| AUTHORIZED AUDIO - VALVE DEALER: _____

| PURCHASER`S NAME : _____

| STREET ADDRESS : _____

| CITY : _____

| ZIP / POSTAL CODE : _____



Certificate of Compliance

Restriction of the use of Hazardous Substances (RoHS)

We certify that all of our products (exceptions see listed below) are compliant with the European Union

Directive 2002/95/EC for the Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS).

No Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr+6), PBB or PBDE is intentionally added to these devices. Any trace impurities of these substances contained in the parts are below the RoHS specified threshold levels.

All information provided in this Certificate of Compliance is accurate to the best of our knowledge as of the date this Certification was issued.

Certificate of Compliance

Registration, Evaluation, Authorization and Restriction of chemicals (REACH)

We declare that all of our products European Union Directive EC1907/2006 for the Registration, Evaluation, Authorization and Restriction of chemicals (REACH), and contain none or less than 0.1% of the chemicals listed as hazardous chemicals in the REACH regulation. All information provided in this Certificate of Compliance is accurate to the best of our knowledge as of the date this Certification was issued.

Declaration of Conformity

EMC and Low Voltage Directive (CE)

Product Name: AudioValve

Model name: RKV MARK 3

This is to certify that the product listed above complies with the following European Union Council Directives and Standards relating to electromagnetic compatibility (EMC Directive 89/336/EEC) and the low voltage Directive (73/23/EEC).

This declaration of conformity of the European Communities is the result of an examination carried out by

Electromagnetic Engineering Services, Inc. in accordance with European Standards EN 50081-1, EN 50082-1 and EN 60065 for low voltage, as laid down in Article 10 of the EMC Directive.

Helmut Becker, AudioValve

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34 123 KASSEL - Germany

